Article 13 Annals of Carnegie Museum Volume 39

THE MANDIBULAR DENTITION OF *?TETONOIDES* (PRIMATES, ANAPTOMORPHIDAE)

Peter Robinson
University of Colorado Museum

Members of the Primate family Anaptomorphidae (*sensu stricto*) are usual elements of the fauna in most Eocene localities of North America that are well sampled. Recent studies of Eocene faunas such as McKenna (1960), Gazin (1952, 1962) and Robinson (1966) confirm the widespread occurrence of these small animals and also their diversity.

One of the interesting characteristics of the Anaptomorphidae is their widespread distribution as a group but their minimal distribution at the species level. The possibility that some of the species or genera may have been endemic should not be overlooked. *Anemorhysis sublettensis* (Gazin, 1952; 1958) is known only from the western part of the Green River basin; *Tetonoides pearcei* (Gazin, 1962) is known from the east and west flanks of the Rock Springs uplift of southwestern Wyoming; and *Huerfanius rutherfurdi* (Robinson, 1966) is known from Huerfano Basin, south-central Colorado.

Several jaws have been found which preserve the entire dentulous portion but I know of no specimen published which contains the entire mandibular tooth series. The discovery by the Carnegie Museum field party in 1953 of the specimen described below is therefore of significance.

The abbreviation CM refers to Carnegie Museum; UC to the University of California.

?Tetonoides sp.

MATERIAL: Fragment of left jaw, CM 12190, with entire tooth row represented—9 teeth. Collected by J. L. Kay and party from lower beds (Graybull) of the Willwood Formation, sec. 10 or 11, T. 50,N., R. 94 W., Bighorn Basin, Wyoming.

DESCRIPTION AND DISCUSSION: I have not assigned this specimen to a species because of the lack of comparative material. However, the development of P_4 and the trigonids of M_{2-3} resembles that in *Tetonius* more than it does that in *Tetonoides*. *Tetonoides* has distinct paraconids

Submitted for publication February 23, 1967
Issued November 30, 1967

and metaconids on the last two molars, whereas these cusps are less distinct on this specimen. The P_4 is much larger, porportionally, than those figured by Gazin (1962) for *Tetonoides*. The number of teeth resembles that in *Tetonoides* more than in *Tetonius* (Matthew, 1915).

The most anterior tooth (I_2?) has a large procumbent root. The crown is missing but the size of the root indicates that the tooth was much larger than the three following it. I_3 and C follow the large tooth; C is premolariform, a condition found elsewhere for lower canines (Simons, 1961); and both are subequal in size. The fourth tooth ($?P_2$) is very small, and was certainly vestigial. These four anterior teeth have one root each, the five posterior teeth (P_3-M_3) have two. The anterolingual faces of P_3 and P_4 are damaged, as is the hypoconulid of M_3. The dental formula for this mandible is therefore 2.1.3.3, or 9, a condition found only in *Tetonoides* (based on alveolar count, Gazin 1962). Most anaptomorphids have a formula of 2.1.2.3 or 8 (Gazin, 1958, p. 74) and *Tetonius* is assumed to have had fewer teeth than that. If the extremely small P_2 had been present in other anaptomorphid jaws (which I doubt) then it could easily have been lost and its small alveolus interpreted as some other structure, if indeed the alveolus was preserved or noticed. Anaptomorphid jaws are common in the Willwood Formation but most of the specimens lack the symphyseal area and anterior teeth.

The importance of this specimen, which represents an early Eocene primate having a vestigial P_2, in ascertaining the identity of teeth in other specimens of the Anaptomorphidae cannot be emphasized too strongly. Here C and I_3 are of equal size and possibly of similar function. Further reduction of anterior teeth with the loss of one or more of them would produce a situation similar to that in *Uintasorex* (Gazin, 1958, plate 11) and would support the hypothesis that the large anterior tooth is an incisor rather than a procumbent canine. Because of the similarity in size between I_3 and C, specimens with one of these teeth in vestigial condition would have to be found to allow a proper homology of the second tooth in the mandible in some species.

The development of I_2 into the large anterior tooth in CM 12190 and in other anaptomorphids distinguishes them from the Necrolemurinae (Simons, 1961) of Europe and from *Tarsius*, in which the large anterior tooth is the canine. In this respect the Anaptomorphidae would seem to be convergently tarsiiform.

McKenna's (1960, p. 68, fig. 33) interesting specimen of *Anemorhysis* sp. cf. *A. minutus* from the Four Mile fauna is nearly as complete as CM 12190 from the Willwood Formation and is better preserved. The

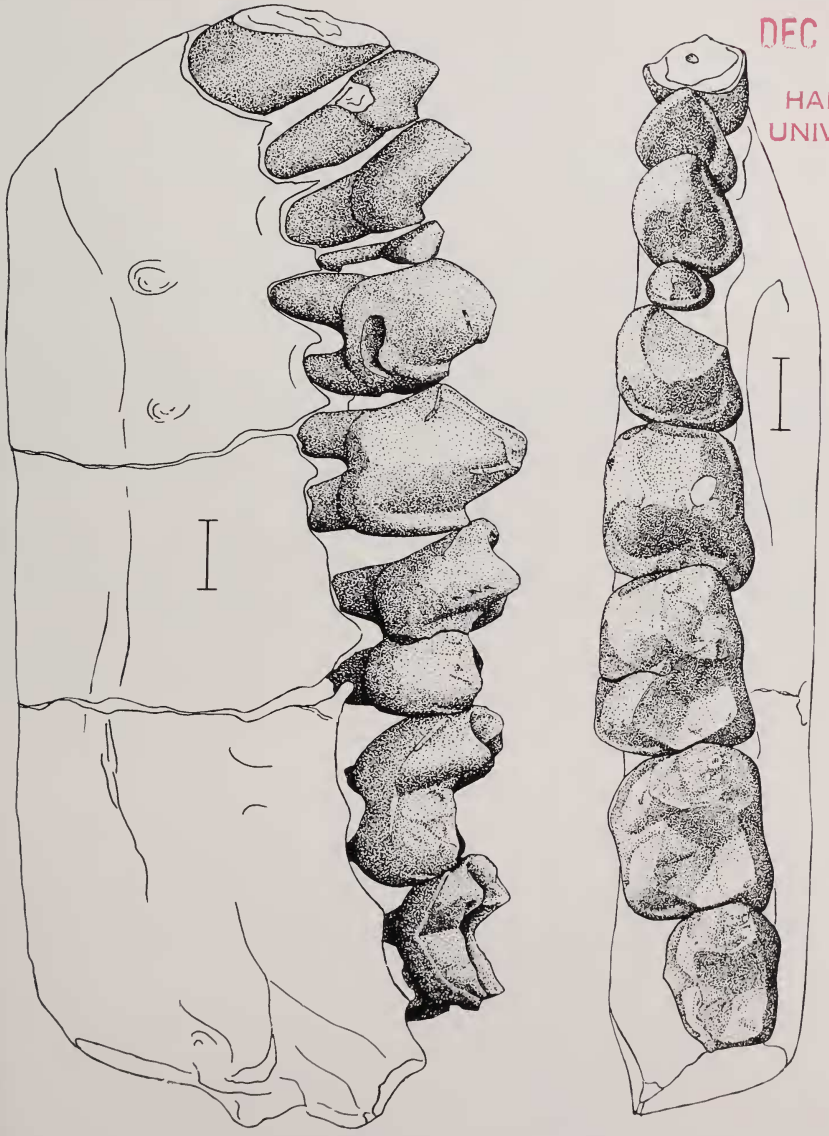

Fig. 1. Buccal (L.) and occlusal (R.) views of *?Tetonoides* sp., CM 12190, from the Willwood Formation, Bighorn Basin, Wyoming. The small bar represents a one-millimeter scale.

anterior incisor (I_2) is similar in shape to the canine of Necrolemurinae, the two teeth following it (I_3-C) are premolariform, and there is a small matrix-filled diastema between C and P_3. The cleaning of this diastema and examination for a small alveolus for P_2 would be a worthwhile chore.

McKenna (1960) included his material of *Anemorhysis* (Gazin, 1958) in the Omomyinae (= Omomyidae) with question, but it is obvious from the illustrations of *A. sublettensis* (Gazin, 1952, Plate 1, fig. 5; 1962, Plate 3, fig. 1) and *A.* sp. cf. *A. minutus* that they both belong in the Anaptomorphidae, where Gazin placed *A. sublettensis* in 1962. The specimen from the Four Mile fauna figured by McKenna (1960, fig.33) has the depressed buccal margin of P_4 characteristic of the Anaptomorphidae. His other specimen, UC 47159 (McKenna 1960, fig. 32), has a more complex P_4 and may belong in another taxon, or it may be correctly allocated and UC 46196 (McKenna, 1960, fig. 33) may belong in *Tetonoides*. McKenna's specimen shows that I_3 is smaller than C and may be the tooth lost in additional reduction of the anaptomorphid dentition in time.

It can be shown by analysis of several specimens that the large anterior tooth of the anaptomorphid jaw is the most anterior incisor, probably I_2, and that canines, when present, are premolariform. These characters separate the Anaptomorphidae, on the basis of dentition, from the Tarsiidae, including Necrolemurinae, and show that the development of the tarsiiform condition in the Anaptomorphidae is convergent.

ACKNOWLEDGEMENTS

I am indebted to Craig C. Black for the loan of the specimen described here. The drawings were made by Mary S. Anderson and Patricia F. Robinson. The University of Colorado Council on Research and Creative Work supported the study with a grant for illustrations.

REFERENCES CITED

GAZIN, C. L.

1952. The lower Eocene Knight Formation of western Wyoming and its mammalian faunas. Smithsonian Misc. Coll., 117(18): 1-82.

1958. A review of the Middle and Upper Eocene Primates of North America. Smithsonian Misc. Coll., 136(1): 1-112.

1962. A further study of the Lower Eocene mammalian faunas of southwestern Wyoming. Smithsonian Misc. Coll., 144(1): 1-98.

MATTHEW, W. D.

1915. A revision of the Lower Eocene Wasatch and Wind River faunas. Part 4. Entelonychia, Primates, Insectivora (part). Bull. Amer. Mus. Nat. Hist., 34: 429-483.

MCKENNA, M. C.

1960. Fossil Mammalia from the early Wasatchian Four Mile fauna, Eocene of northwest Colorado. Univ. California Publ. Geol. Sci., 37: 1-130.

ROBINSON, PETER

1966. Fossil Mammalia of the Huerfano Formation, Eocene, of Colorado. Bull. Yale Peabody Mus., 21: 1-85.

SIMONS, E. L.

1961. Notes on Eocene tarsioids and a revision of some Necrolemurinae. Bull. Brit. Mus. Nat. Hist., 5: 45-69.